



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

We make Indiana a cleaner, healthier place to live.

Joseph E. Kernan
Governor

Lori F. Kaplan
Commissioner

March 11, 2004

100 North Senate Avenue
P.O. Box 6015
Indianapolis, Indiana 46206-6015
(317) 232-8603
(800) 451-6027
www.in.gov/idem

TO: Interested Parties / Applicant

RE: Bison Manufacturing, Inc. / 085-18420-00095

FROM: Paul Dubenetzky
Chief, Permits Branch
Office of Air Quality

Notice of Decision: Approval - Registration

Please be advised that on behalf of the Commissioner of the Department of Environmental Management, I have issued a decision regarding the enclosed matter. Pursuant to IC 4-21.5-3-4(d) this order is effective when it is served. When served by U.S. mail, the order is effective three (3) calendar days from the mailing of this notice pursuant to IC 4-21.5-3-2(e).

If you wish to challenge this decision, IC 4-21.5-3-7 requires that you file a petition for administrative review. This petition may include a request for stay of effectiveness and must be submitted to the Office of Environmental Adjudication, 100 North Senate Avenue, Government Center North, Room 1049, Indianapolis, IN 46204, **within eighteen (18) calendar days of the mailing of this notice**. The filing of a petition for administrative review is complete on the earliest of the following dates that apply to the filing:

- (1) the date the document is delivered to the Office of Environmental Adjudication (OEA);
- (2) the date of the postmark on the envelope containing the document, if the document is mailed to OEA by U.S. mail; or
- (3) The date on which the document is deposited with a private carrier, as shown by receipt issued by the carrier, if the document is sent to the OEA by private carrier.

The petition must include facts demonstrating that you are either the applicant, a person aggrieved or adversely affected by the decision or otherwise entitled to review by law. Please identify the permit, decision, or other order for which you seek review by permit number, name of the applicant, location, date of this notice and all of the following:

- (1) the name and address of the person making the request;
- (2) the interest of the person making the request;
- (3) identification of any persons represented by the person making the request;
- (4) the reasons, with particularity, for the request;
- (5) the issues, with particularity, proposed for considerations at any hearing; and
- (6) identification of the terms and conditions which, in the judgment of the person making the request, would be appropriate in the case in question to satisfy the requirements of the law governing documents of the type issued by the Commissioner.

If you have technical questions regarding the enclosed documents, please contact the Office of Air Quality, Permits Branch at (317) 233-0178. Callers from within Indiana may call toll-free at 1-800-451-6027, ext. 3-0178.

Enclosures
FN-REGIS.dot 9/16/03



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

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Frank O'Bannon
Governor

Lori F. Kaplan
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March 11, 2004

Craig Swisher
Bison Manufacturing, Inc.
804 South Higbee (S. R. 15)
Milford, IN 46542

Re: Re-Registration No.,
085-18420-00095

Dear Mr. Swisher:

The application from Bison Manufacturing, Inc., received on January 21, 2004, has been reviewed. Based on the data submitted and the provisions in 326 IAC 2-5.5, it has been determined that the following emission units, to be located at 804 South Higbee (S. R. 15), Indiana, are classified as registered:

- (a) One (1) paint booth operation, constructed in 2003, equipped with high volume low pressure (HVLP) spray guns and dry filters for particulate control, capacity: 0.1667 trailers per hour.
- (b) One (1) trim/assembly operation, constructed in 2003, capacity: 0.25 trailers per hour.
- (c) One (1) living quarters assembly operation, constructed in 2003, capacity: 0.1667 trailers per hour.
- (d) One (1) metal washing operation, constructed in 2003, capacity: 0.1667 trailers per hour.
- (e) One (1) metal cutting operation using cutting coolant, constructed in 2003, capacity: 500 pounds of metal per trailer.
- (f) One (1) woodworking operation, constructed in 2003, capacity: 0.1667 trailers per hour.
- (g) One (1) gasoline storage tank, constructed in 2003, capacity: 250 gallons.
- (h) One (1) #2 distillate fuel oil storage tank, constructed in 2003, capacity 250 gallons.
- (i) One (1) welding operation, constructed in 2003, consisting of twenty-five (25) metal gas (MIG) welding stations, capacity: 36.5 pounds of wire per hour total.
- (j) One (1) natural gas-fired paint booth air make-up unit, constructed in 2003, exhausting to stack Paint 1 and Paint 2, rated at 3.888 million British thermal units per hour.
- (k) Twenty (20) natural gas-fired space heaters, constructed in 2003, rated at 1.5 million British thermal units per hour, total or 0.075 million British thermal units per hour, each.
- (l) One (1) natural gas-fired power washer, constructed in 2003, rated at 0.44 million British thermal units per hour.

- (m) One (1) natural gas-fired office air make-up unit, constructed in 2003, rated at 0.15 million British thermal units per hour.

The following conditions shall be applicable:

(1) Pursuant to 326 IAC 5-1-2 (Opacity Limitations) except as provided in 326 IAC 5-1-3 (Temporary Exemptions), opacity shall meet the following:

- (a) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
- (b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of 15 minutes (60 readings) in a 6-hour period as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor in a six (6) hour period.

(2) Pursuant to 326 IAC 6-3-2 (Process Operations):

- (a) Particulate from the one (1) paint booth operation shall be controlled by a dry particulate filter, waterwash, or an equivalent control device, and the Permittee shall operate the control device in accordance with manufacturer's specifications.

If overspray is visibly detected at the exhaust or accumulates on the ground, the Permittee shall inspect the control device and do either of the following no later than four (4) hours after such observation:

- (1) Repair control device so that no overspray is visibly detectable at the exhaust or accumulates on the ground.
- (2) Operate equipment so that no overspray is visibly detectable at the exhaust or accumulates on the ground.

If overspray is visibly detected, the Permittee shall maintain a record of the action taken as a result of the inspection, any repairs of the control device, or change in operations, so that overspray is not visibly detected at the exhaust or accumulates on the ground. These records must be maintained for five (5) years.

- (b) Particulate from the one (1) woodworking operation shall not exceed 1.02 pounds per hour when operating at a process weight rate of 0.125 tons per hour. This limitation is based on the following equation:

Interpolation and extrapolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$$E = 4.10 P^{0.67} \quad \text{where} \quad E = \text{rate of emission in pounds per hour and} \\ P = \text{process weight rate in tons per hour}$$

- (3) Pursuant to 326 IAC 8-2-9 (Miscellaneous Metal Coating Operations), the volatile organic compound (VOC) content of coating delivered to the applicator at the one (1) paint booth operation shall not be in excess of 3.50 pounds of VOCs per gallon of coating less water, for extreme performance coatings.

Solvent sprayed from application equipment during cleanup or color changes shall be directed into containers. Such containers shall be closed as soon as such solvent spraying is complete, and the waste solvent shall be disposed of in such a manner that evaporation is minimized.

Compliance with this rule for the one (1) paint booth operation shall be shown by use of the following equation to calculate daily volume weighted average:

$$A = \frac{\sum (C \times U)}{\sum U}$$

Where: A is the volume weighted average in pounds VOC per gallon less water as applied;
C is the VOC content of the coating in pounds VOC per gallon less water as applied;
and U is the usage rate of the coating in gallons per day.

- (4) Pursuant to 326 IAC 8-2-9 (Miscellaneous Metal Coating Operations), the volatile organic compound (VOC) content of adhesives used in the one (1) trim/assembly operation and the one (1) living quarters operation shall not exceed 3.5 pounds of VOC per gallon as applied.

Solvent sprayed from application equipment during cleanup or color changes shall be directed into containers. Such containers shall be closed as soon as such solvent spraying is complete, and the waste solvent shall be disposed of in such a manner that evaporation is minimized.

- (5) Any change or modification that may increase the potential to emit of a single Hazardous Air Pollutant (HAP) to 10 tons per year or greater, or that of Volatile Organic Compounds (VOC) or any combination of HAPs to 25 tons per year or greater shall require prior approval of the Office of Air Quality (OAQ).

This registration is a re-registration issued to this source. The source may operate according to 326 IAC 2-5.5.

An authorized individual shall provide an annual notice to the Office of Air Quality that the source is in operation and in compliance with this registration pursuant to 326 IAC 2-5.5-4(a)(3). The annual notice shall be submitted to:

**Compliance Data Section
Office of Air Quality
100 North Senate Avenue
P.O. Box 6015
Indianapolis, IN 46206-6015**

no later than March 1 of each year, with the annual notice being submitted in the format attached.

An application or notification shall be submitted in accordance with 326 IAC 2 to the Office of Air Quality (OAQ) if the source proposes to construct new emission units, modify existing emission units, or otherwise modify the source.

Sincerely,
Original signed by Paul Dubenetzky

Paul Dubenetzky, Chief
Permits Branch
Office of Air Quality

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cc: File - Kosciusko County
Kosciusko County Health Department
Air Compliance – Doyle Houser
Northern Regional Office
Permit Tracking
Compliance Data Section

Registration Annual Notification

This form should be used to comply with the notification requirements under 326 IAC 2-5.5-4(a)(3)

Company Name: Bison Manufacturing, Inc.
Address: 804 South Higbee (S. R. 15)
City: Milford, IN 46542
Authorized individual: Plant Manager
Phone #:
Registration #: 085-18420-00095

I hereby certify that **Bison Manufacturing, Inc.** is still in operation and is in compliance with the requirements of Registration **085-18420-00095**.

Name (typed):
Title:
Signature:
Date:

**Indiana Department of Environmental Management
Office of Air Quality**

Technical Support Document (TSD) for a Re-Registration

Source Background and Description

Source Name:	Bison Manufacturing, Inc.
Source Location:	804 South Higbee (SR 15), Milford, Indiana 46542
County:	Kosciusko
SIC Code:	3715 and 3799
Re-Registration No.:	085-18420-00095
Permit Reviewer:	Madhurima D. Moulik

The Office of Air Quality (OAQ) has reviewed an application from Bison Manufacturing, Inc. relating to the operation of a livestock trailer superstructure manufacturing source.

Permitted Emission Units and Pollution Control Equipment

The source consists of the following permitted emission units and pollution control devices:

- (a) One (1) paint booth operation, constructed in 2003, equipped with high volume low pressure (HVLP) spray guns and dry filters for particulate control, capacity: 0.1667 trailers per hour.
- (b) One (1) trim/assembly operation, constructed in 2003, capacity: 0.25 trailers per hour.
- (c) One (1) living quarters assembly operation, constructed in 2003, capacity: 0.1667 trailers per hour.
- (d) One (1) metal washing operation, constructed in 2003, capacity: 0.1667 trailers per hour.
- (e) One (1) metal cutting operation using cutting coolant, constructed in 2003, capacity: 500 pounds of metal per trailer.
- (f) One (1) woodworking operation, constructed in 2003, capacity: 0.1667 trailers per hour.
- (g) One (1) gasoline storage tank, constructed in 2003, capacity: 250 gallons.
- (h) One (1) #2 distillate fuel oil storage tank, constructed in 2003, capacity 250 gallons.
- (i) One (1) welding operation, constructed in 2003, consisting of twenty-five (25) metal gas (MIG) welding stations, capacity: 36.5 pounds of wire per hour total.
- (j) One (1) natural gas-fired paint booth air make-up unit, constructed in 2003, exhausting to stack Paint 1 and Paint 2, rated at 3.888 million British thermal units per hour.
- (k) Twenty (20) natural gas-fired space heaters, constructed in 2003, rated at 1.5 million British thermal units per hour, total or 0.075 million British thermal units per hour, each.
- (l) One (1) natural gas-fired power washer, constructed in 2003, rated at 0.44 million British thermal units per hour.
- (m) One (1) natural gas-fired office air make-up unit, constructed in 2003, rated at 0.15 million British thermal units per hour.

Unpermitted Emission Units and Pollution Control Equipment

There are no unpermitted facilities operating at this source during this review process.

Existing Approvals

The source has been operating under previous approvals including, but no limited to, the following:

- (a) Registration No.: 085-17910-00095, issued on November 12, 2003.

In Registration No. 085-17910-00095, compliance with 326 IAC 8-2-9 was determined for surface coating operations in Living Quarters area by calculation of the daily volume weighted average of coating materials used. However, the two coatings used in the Living Quarters area (SM 5504 and Silicone Sealant each meet the 3.5 pounds of VOC per gallon limit specified in 326 IAC 8-2-9. Therefore, this requirement will be removed in this current re-registration no. 085-18420-00095.

Enforcement Issue

There are no enforcement actions pending.

Stack Summary

Stack ID	Operation	Height (feet)	Diameter (feet)	Flow Rate (acfm)	Temperature (?F)
Paint 1 and 2	Paint Booth Air Make-Up Unit	20	1.17	36,000	Ambient

Recommendation

The staff recommends to the Commissioner that the operation be approved. This recommendation is based on the following facts and conditions:

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant.

A complete application for the purposes of this review was received on January 22, 2004.

Emission Calculations

See Appendix A of this document for detailed emission calculations.

No emissions are associated with the one (1) metal cutting operation because the operation utilizes cutting coolant. No emissions are associated with the phosphate bath from the power washer because the phosphate bath contains no volatile organic compounds (VOCs).

Potential to Emit of the Source Before Controls

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as "the maximum capacity of a stationary source or emissions unit to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U.S. EPA, the department, or the appropriate local air pollution control agency."

Pollutant	Potential To Emit (tons/year)
PM	9.20
PM ₁₀	9.35
SO ₂	0.016
VOC	22.1
CO	2.20
NO _x	2.62

HAPs	Potential To Emit (tons/year)
Benzene	0.0001
Dichlorobenzene	0.00003
Formaldehyde	0.002
Hexane	0.047
Toluene	0.0001
Lead Compounds	0.00001
Cadmium Compounds	0.00003
Chromium Compounds	0.002
Manganese Compounds	0.553
Nickel Compounds	0.160
Xylene	0.052
Toluene	7.54
Methanol	0.00003
Methylene Chloride	1.02
Ethyl Benzene	0.009
MEK	1.27
Perchloroethylene	0.226
Trichloroethylene	0.226
MIBK	0.760
TOTAL	11.9

- (a) The potential to emit (as defined in 326 IAC 2-7-1(29)) of pollutants are less than 25 tons per year. Therefore, the source is subject to the provisions of 326 IAC 2-5.5. A registration will be issued.

County Attainment Status

The source is located in Kosciusko County.

Pollutant	Status
PM-10	attainment
SO ₂	attainment
NO ₂	attainment
Ozone	attainment
CO	attainment
Lead	attainment

- (a) Volatile organic compounds (VOC) are precursors for the formation of ozone. Therefore, VOC emissions are considered when evaluating the rule applicability relating to the ozone standards. Kosciusko County

has been designated as attainment or unclassifiable for ozone. Therefore, VOC emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2. See the State Rule Applicability for the source section.

- (b) Kosciusko County has been classified as attainment or unclassifiable for all other criteria pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2. See the State Rule Applicability for the source section.

Part 70 Permit Determination

326 IAC 2-7 (Part 70 Permit Program)

This existing source is not subject to the Part 70 Permit requirements because the potential to emit (PTE) of:

- (a) each criteria pollutant is less than 100 tons per year,
- (b) a single hazardous air pollutant (HAP) is less than 10 tons per year, and
- (c) any combination of HAPs is less than 25 tons per year.

Federal Rule Applicability

- (a) The fuel oil and gasoline storage tanks, constructed in 2003, are not subject to the requirements of the New Source Performance Standard (NSPS), 326 IAC 12, (40 CFR 60.110b, Subpart Kb) because the storage tanks each have a capacity less than forty (40) cubic meters which is equal to 10,566.8 gallons.
- (b) The requirements of the National Emission Standard for Hazardous Air Pollutants (NESHAP), 40 CFR 63, Subpart T – Standards for Degreasing Operations Using Halogenated Solvents, are not applicable to this new source because the source is not equipped with a solvent cleaning machine.
- (c) The requirements of the National Emission Standard for Hazardous Air Pollutants (NESHAP), 40 CFR 63, Subpart IIII (proposed) – Standards for Auto and Light Duty Trucks, are not applicable to this new source because the source is not a major source for HAPs .

State Rule Applicability – Entire Source

326 IAC 2-2 (Prevention of Significant Deterioration (PSD))

This new source emits less than 250 tons per year of any pollutant and it is not one of the 28 sources listed under 326 IAC 2-2. Therefore, the requirements of 326 IAC 2-2 do not apply.

326 IAC 2-6 (Emission Reporting)

This source is located in Kosciusko County and the potential to emit of all criteria pollutants are less than one hundred (100) tons per year. Therefore, 326 IAC 2-6 does not apply.

326 IAC 2-4.1-1 (New Source Toxics Control)

The potential to emit of any single HAP from the entire source is less than ten (10) tons per year and the potential emit of any combination of HAPs from the entire source is less than twenty-five (25) tons per year. Therefore, the requirements of 326 IAC 2.4.1-1 do not apply.

326 IAC 5-1 (Visible Emissions Limitations)

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Alternative Opacity Limitations), opacity shall meet the following, unless otherwise stated in the permit:

- (a) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.

- (b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings) as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

State Rule Applicability – Individual Facilities

326 IAC 6-3-2 (Process Operations)

- (a) Particulate from the one (1) paint booth operation shall be controlled by a dry particulate filter, waterwash, or an equivalent control device, and the Permittee shall operate the control device in accordance with manufacturer's specifications.

If overspray is visibly detected at the exhaust or accumulates on the ground, the Permittee shall inspect the control device and do either of the following no later than four (4) hours after such observation:

- (1) Repair control device so that no overspray is visibly detectable at the exhaust or accumulates on the ground.
- (2) Operate equipment so that no overspray is visibly detectable at the exhaust or accumulates on the ground.

If overspray is visibly detected, the Permittee shall maintain a record of the action taken as a result of the inspection, any repairs of the control device, or change in operations, so that overspray is not visibly detected at the exhaust or accumulates on the ground. These records must be maintained for five (5) years.

- (b) The one (1) trim/assembly operation is not subject to the requirements of 326 IAC 6-3 because the trim/assembly operation uses less than five (5) gallons of coating per day.
- (c) The one (1) living quarters assembly operation is not subject to the requirements of 326 IAC 6-3 because the living quarters assembly operation uses less than five (5) gallons of coating per day.
- (d) The one (1) welding operation is not subject to the requirements of 326 IAC 6-3 because the welding operation has potential emissions less than five hundred fifty-one thousandths (0.551) pound per hour.
- (e) Particulate from the one (1) woodworking operation shall not exceed 1.02 pounds per hour when operating at a process weight rate of 0.125 tons per hour. This limitation is based on the following equation:

Interpolation and extrapolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$$E = 4.10 P^{0.67} \quad \text{where } E = \text{rate of emission in pounds per hour and} \\ P = \text{process weight rate in tons per hour}$$

$$E = 4.10 \times 0.125^{0.67}$$

Therefore, $E = 1.02$ pounds per hour

The uncontrolled PM emissions from the one (1) woodworking operation are 0.834 pounds per hour. Therefore, the one (1) woodworking operation is in compliance with this rule.

326 IAC 8-2-9 (Miscellaneous Metal Coating)

Pursuant to 326 IAC 8-2-9 (Miscellaneous Metal Coating Operations), the volatile organic compound (VOC) content of coating delivered to the applicator at the one (1) paint booth operation shall not be in excess of 3.50 pounds of VOCs per gallon of coating less water, for extreme performance coatings.

Solvent sprayed from application equipment during cleanup or color changes shall be directed into containers. Such containers shall be closed as soon as such solvent spraying is complete, and the waste solvent shall be disposed of in such a manner that evaporation is minimized.

Based on the MSDS submitted by the source and calculations shown on page 5 of 8 of Appendix A, the one (1) paint booth operation is in compliance with this requirement, with a daily volume weighted average of 3.50 pounds of VOC per gallon of coating, less water.

Adhesives used in the one (1) trim/assembly operation and the one (1) living quarters operation are also in compliance with this requirement because all the coatings do not exceed 3.5 pounds of VOC per gallon as applied.

Compliance with this rule for the one (1) paint booth operation shall be shown by use of the following equation to calculate daily volume weighted average:

$$A = \frac{\sum (C \times U)}{\sum U}$$

Where: A is the volume weighted average in pounds VOC per gallon less water as applied;
C is the VOC content of the coating in pounds VOC per gallon less water as applied;
and U is the usage rate of the coating in gallons per day.

326 IAC 8-3 (Organic Solvent Degreasing Operation)

The one (1) trim/assembly operation, the one (1) living quarters assembly operation, the one (1) metal washing operation and the one (1) natural gas-fired power washer are not subject to the requirements of 326 IAC 8-3 because these operations are not equipped with a degreaser or cleaning machine.

326 IAC 8-9 (Volatile Organic Liquid Storage Vessels)

The requirements of 326 IAC 8-9 (Volatile Organic Liquid Storage Vessels) are not applicable to this new source because the source is located in Kosciusko County.

Conclusion

The operation of this livestock trailer superstructure manufacturing source shall be subject to the conditions of the Re-Registration No.: 085-18420-00095.

Appendix A: Emissions Calculations
Natural Gas Combustion Only
MM BTU/HR <100
Combustion Units

Company Name: Bison Manufacturing, LLC
Address City IN Zip: 804 South Higbee (SR 15), Milford, Indiana 46542
Registration: 085-18420
Plt ID: 085-00095
Reviewer: Madhurima D. Moulik
Date: January 27, 2004

Heat Input Capacity
MMBtu/hr

5.978

Potential Throughput
MMCF/yr

52.4

One (1) paint booth air make-up unit rated at 3.888 MMBtu/hr.
 Twenty (20) space heaters rated at 1.5 MMBtu/hr, total.
 One (1) power washer rated at 0.44 MMBtu/hr.
 One (1) office air make-up unit rated at 0.15 MMBtu/hr.

	Pollutant					
	PM*	PM10*	SO2	NOx	VOC	CO
Emission Factor in lb/MMCF	1.90	7.60	0.600	100 **see below	5.50	84.0
Potential Emission in tons/yr	0.050	0.199	0.016	2.62	0.144	2.20

*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.

**Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

Methodology

All emission factors are based on normal firing.

MMBtu = 1,000,000 Btu

MMCF = 1,000,000 Cubic Feet of Gas

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu

Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03 (SUPPLEMENT D 3/98)

Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

See page 2 for HAPs emissions calculations.

Appendix A: Emissions Calculations
Natural Gas Combustion Only
MM BTU/HR <100
Combustion Units
HAPs Emissions

Page 2 of 8 TSD App A

Company Name: Bison Manufacturing, LLC
Address City IN Zip: 804 South Higbee (SR 15), Milford, Indiana 46542
Registration: 085-18420
Pit ID: 085-00095
Reviewer: Madhurima D. Moulik
Date: January 27, 2004

	HAPs - Organics				
Emission Factor in lb/MMcf	Benzene 0.002	Dichlorobenzene 0.001	Formaldehyde 0.075	Hexane 1.80	Toluene 0.003
Potential Emission in tons/yr	0.0001	0.00003	0.002	0.047	0.0001

	HAPs - Metals					
Emission Factor in lb/MMcf	Lead 0.001	Cadmium 0.001	Chromium 0.001	Manganese 0.0004	Nickel 0.002	Total
Potential Emission in tons/yr	0.00001	0.00003	0.00004	0.00001	0.0001	0.049

Methodology is the same as page 1.

The five highest organic and metal HAPs emission factors are provided above.
 Additional HAPs emission factors are available in AP-42, Chapter 1.4.

**Appendix A: Emissions Calculations
VOC and Particulate
From Surface Coating Operations**

Company Name: Bison Manufacturing, LLC
Registration: 804 South Higbee (SR 15), Milford, Indiana 46542
Permit Number: 085-18420
Plt ID: 085-00095
Reviewer: Madhurima D. Moulik
Date: January 27, 2004

Material	Density (Lb/Gal)	Weight % Volatile (H2O & Organics)	Weight % Water	Weight % Organics	Volume % Water	Volume % Non-Volatiles (solids)	Gal of Mat. (gal/unit)	Maximum (unit/hour)	Pounds VOC per gallon of coating less water	Pounds VOC per gallon of coating	Potential VOC pounds per hour	Potential VOC pounds per day	Potential VOC tons per year	Particulate Potential (ton/yr)	lb VOC/gal solids	Transfer Efficiency
Surface Coating																
Part A, 3.5 Poly Paint	8.77	39.8%	0.00%	39.8%	0.00%	60.2%	2.55	0.1667	3.49	3.49	1.48	35.6	6.50	2.46	5.80	75.0%
Part B, 3.5 Paint Activator	8.23	43.0%	0.00%	43.0%	0.00%	57.0%	0.850	0.1667	3.54	3.54	0.501	12.0	2.20	0.728	6.21	75.0%
Part A, Primer	12.31	27.7%	0.00%	27.7%	0.00%	72.3%	2.55	0.1667	3.41	3.41	1.45	34.8	6.35	4.14	4.72	75.0%
Part B, Primer Activator	8.36	42.7%	0.00%	42.7%	0.00%	57.3%	0.430	0.1667	3.57	3.57	0.256	6.14	1.12	0.376	6.23	75.0%
D-150	7.48	100%	0.00%	100%	0.00%	0.00%	0.030	0.1667	7.48	7.48	0.037	0.898	0.164	0.00	N/A	75.0%
Xylol	7.25	100%	0.00%	100%	0.00%	0.00%	0.010	0.1667	7.25	7.25	0.012	0.290	0.053	0.00	N/A	75.0%
PM Acetate	8.01	100%	0.00%	100%	0.00%	0.00%	0.030	0.1667	8.01	8.01	0.040	0.961	0.175	0.00	N/A	75.0%
Poly Reducer	7.82	100%	0.00%	100%	0.00%	0.00%	0.010	0.1667	7.82	7.82	0.013	0.313	0.057	0.00	N/A	75.0%

*Only one (1) coating is applied at a time.

PM Control Efficiency: 85.0%

State Potential Emissions

Add worst case coating to all solvents

Uncontrolled	1.99	47.6	8.70	4.52
Controlled	1.99	47.6	8.70	0.678

Material	Density (Lb/Gal)	Weight % Volatile (H2O & Organics)	Weight % Water	Weight % Organics	Volume % Water	Volume % Non-Volatiles (solids)	Gal of Mat. (gal/unit)	Maximum (unit/hour)	Pounds VOC per gallon of coating less water	Pounds VOC per gallon of coating	Potential VOC pounds per hour	Potential VOC pounds per day	Potential VOC tons per year	Particulate Potential (ton/yr)	lb VOC/gal solids	Transfer Efficiency
Metal Washing																
Lacquer Thinner	7.02	100%	0.00%	100%	0.00%	0.00%	1.483	0.1667	7.02	7.02	1.74	41.7	7.60	0.00	N/A	100%
											1.74	41.7	7.60	0.00		
Assembly																
Permathane Sealant	13.32	3.00%	0.00%	3.00%	0.00%	97.0%	0.123	0.250	0.400	0.400	0.012	0.295	0.054	0.00	0.412	100%
NuFlex 302	8.59	3.10%	0.00%	3.10%	0.00%	96.9%	0.385	0.250	0.266	0.266	0.026	0.615	0.112	0.00	0.275	100%
Grundly Plastic Adhesive	7.50	30.0%	0.00%	30.0%	0.00%	65.0%	0.319	0.250	2.25	2.25	0.179	4.31	0.786	0.00	3.46	100%
Simple Green	8.54	98.14%	97.34%	0.800%	97.34%	1.86%	0.125	0.250	2.57	0.068	0.002	0.051	0.009	0.011	3.67	50.0%
SC-0299 773 Adhesive	9.60	28.0%	0.00%	28.0%	0.00%	72.0%	0.078	0.250	2.69	2.69	0.052	1.26	0.230	0.00	3.73	100%
Seam Sealer SM 5504	8.25	42.5%	0.00%	42.5%	0.00%	57.55%	0.390	0.250	3.50	3.50	0.341	8.19	1.50	0.00	6.09	100%
											0.613	14.7	2.69	0.011		
Living Quarters																
Seam Sealer SM 5504	8.25	42.5%	0.00%	42.5%	0.00%	58.0%	0.570	0.1667	3.50	3.50	0.333	7.99	1.46	0.00	6.04	100%
Crazy Clean	8.40	100%	0.00%	100%	0.00%	0.00%	0.034	0.1667	8.40	8.40	0.048	1.15	0.209	0.00	N/A	50.0%
Flex Foam Adhesive	10.41	88.0%	49.6%	38.4%	49.6%	12.0%	0.298	0.1667	7.93	4.00	0.199	4.77	0.870	0.136	33.3	50.0%
Silicone Sealant	8.67	0.500%	0.00%	0.500%	0.00%	99.5%	0.363	0.1667	0.043	0.043	0.003	0.063	0.011	0.00	0.044	100%
Oatey Clear Cleaner	6.59	100%	44.4%	55.6%	40.0%	0.00%	0.038	0.1667	6.11	3.66	0.023	0.554	0.101	0.00	N/A	100%
Oatey ABS Black Cement	7.26	67.6%	0.00%	67.6%	0.00%	32.5%	0.091	0.1667	4.91	4.91	0.074	1.79	0.326	0.00	15.1	100%

PM Control Efficiency: 0.00%

0.679	16.3	2.98	0.136
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State Potential Emissions

Add worst case coating to all solvents

Uncontrolled	3.03	72.7	13.3	0.147
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METHODOLOGY

Pounds of VOC per Gallon Coating less Water = (Density (lb/gal) * Weight % Organics) / (1-Volume % water)

Pounds of VOC per Gallon Coating = (Density (lb/gal) * Weight % Organics)

Potential VOC Pounds per Hour = Pounds of VOC per Gallon coating (lb/gal) * Gal of Material (gal/unit) * Maximum (units/hr)

Potential VOC Pounds per Day = Pounds of VOC per Gallon coating (lb/gal) * Gal of Material (gal/unit) * Maximum (units/hr) * (24 hr/day)

Potential VOC Tons per Year = Pounds of VOC per Gallon coating (lb/gal) * Gal of Material (gal/unit) * Maximum (units/hr) * (8760 hr/yr) * (1 ton/2000 lbs)

Particulate Potential Tons per Year = (units/hour) * (gal/unit) * (lbs/gal) * (1- Weight % Volatiles) * (1-Transfer efficiency) *(8760 hrs/yr) *(1 ton/2000 lbs)

Pounds VOC per Gallon of Solids = (Density (lbs/gal) * Weight % organics) / (Volume % solids)

Total = Worst Coating + Sum of all solvents used

Overall Total				
	Potential VOC pounds per hour	Potential VOC pounds per day	Potential VOC tons per year	Particulate Potential (ton/yr)
Uncontrolled	5.02	120	22.0	4.67
Controlled	5.02	120	22.0	0.825

Appendix A: Emission Calculations
HAP Emission Calculations

Company Name: Bison Manufacturing, LLC
Address City IN Zip: 804 South Higbee (SR 15), Milford, Indiana 46542
Registration: 085-18420
Pit ID: 085-00095
Permit Reviewer: Madhurima D. Moulik
Date: January 27, 2004

Material	Density (Lb/Gal)	Gallons of Material (gal/unit)	Maximum (unit/hour)	Weight % Xylene	Weight % Toluene	Weight % MIBK	Weight % MEK	Weight % Ethyl Benzene	Weight % Methylene Chloride	Weight % Perchloroethylene	Weight % Trichloroethylene	Xylene Emissions (ton/yr)	Toluene Emissions (ton/yr)	MIBK Emissions (ton/yr)	MEK Emissions (ton/yr)	Ethyl Benzene Emissions (ton/yr)	Methylene Chloride Emissions (ton/yr)	Perchloroethylene Emissions (ton/yr)	Trichloroethylene Emissions (ton/yr)
Metal Washing																			
Lacquer Thinner	7.02	1.483	0.1667	0.00%	60.0%	10.0%	10.0%	0.00%	0.00%	0.00%	0.00%	0.00	4.56	0.760	0.760	0.00	0.00	0.00	0.00
Surface Coating																			
Xylol	7.25	0.010	0.1667	81.8%	0.00%	0.00%	0.00%	17.5%	0.00%	0.00%	0.00%	0.043	0.00	0.00	0.00	0.009	0.00	0.00	0.00
Poly Reducer	7.82	0.010	0.1667	23.2%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.013	0.00	0.00	0.00	0.00	0.00	0.00	0.00
*Only one (1) coating is applied at a time.																			
Assembly																			
Permathane Sealant	13.32	0.123	0.250	0.00%	3.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00	0.054	0.00	0.00	0.00	0.00	0.00	0.00
SC-0299 773 Adhesive	9.60	0.078	0.250	1.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.008	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Seam Sealer SM 5504	8.25	0.390	0.250	0.00%	42.0%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00	1.48	0.00	0.00	0.00	0.00	0.00	0.00
Living Quarters																			
Seam Sealer SM 5504	8.25	0.570	0.1667	0.00%	42.0%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00	1.44	0.00	0.00	0.00	0.00	0.00	0.00
Flex Foam Adhesive	10.4	0.298	0.1667	0.00%	0.00%	0.00%	0.00%	0.00%	45.0%	10.0%	10.0%	0.00	0.00	0.00	0.00	0.00	1.02	0.226	0.226
Oatey Clear Cleaner	6.59	0.038	0.1667	0.00%	0.00%	0.00%	80.0%	0.00%	0.00%	0.00%	0.00%	0.00	0.00	0.00	0.146	0.00	0.00	0.00	0.00
Oatey Black Cement	7.26	0.091	0.1667	0.00%	0.00%	0.00%	75.0%	0.00%	0.00%	0.00%	0.00%	0.00	0.00	0.00	0.362	0.00	0.00	0.00	0.00

0.052	7.54	0.760	1.27	0.009	1.02	0.226	0.226
						Overall Total	11.1

METHODOLOGY

HAPS emission rate (tons/yr) = Density (lb/gal) * Gal of Material (gal/unit) * Maximum (unit/hr) * Weight % HAP * 8760 hrs/yr * 1 ton/2000 lbs

**Appendix A: Emissions Calculations
Volume Weighted VOC Content
From Surface Coating Metal Operations**

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Company Name: Bison Manufacturing, LLC
Address City IN Zip: 804 South Higbee (SR 15), Milford, Indiana 46542
Registration: 085-18420
Plt ID: 085-00095
Reviewer: Madhurima D. Moulik
Date: January 28, 2004

Volume Weighted VOC Content of the Coatings Used

$$A = \frac{C \times U \text{ (summed for all coatings)}}{U \text{ (summed for all coatings)}}$$

A = The volume weighted average in pounds per gallon less water as applied.

C = The VOC content of the coating in pounds VOC per gallon less water as applied.

U = The usage rate of the coating in gallons per day.

Paint Booth Operation

$$A = \frac{35.6\text{lbs/day}(\text{Part A, 3.5 Poly Paint}) + 12.0\text{lbs/day}(\text{Part B, 3.5 Paint Activator}) + 34.8\text{lbs/day}(\text{Part A, Primer}) + 6.14\text{lbs/day}(\text{Part B, Primer Activator}) + 0.898\text{lbs/day}(\text{D-150}) + 0.290\text{lbs/day}(\text{Xylol}) + 0.961\text{lbs/day}(\text{PM Acetate}) + 0.313\text{lbs/day}(\text{Poly Redu})}{10.2\text{gal/day}(\text{Part A, 3.5 Poly Paint}) + 3.40\text{gal/day}(\text{Part B, Paint Activator}) + 10.2\text{gal/day}(\text{Part A, Primer}) + 1.72\text{gal/day}(\text{Part B, Primer Activator}) + 0.120\text{gal/day}(\text{D-150}) + 0.040\text{gal/day}(\text{Xylol}) + 0.120\text{gal/day}(\text{PM Acetate}) + 0.120\text{gal/day}(\text{Poly Reduce})}$$

$$A = \frac{91.0\text{lbs/day}}{25.8\text{gal/day}} \quad A = 3.5 \text{ lbs/gal}$$

**Appendix A: Emissions Calculations
Welding**

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Company Name: Bison Manufacturing, LLC
Address City IN Zip: 804 South Higbee (SR 15), Milford, Indiana 46542
Registration: 085-18420
Pit ID: 085-00095
Reviewer: Madhurima D. Moulik
Date: January 27, 2004

PROCESS	Number of Stations	Max. electrode consumption per station (lbs/hr)		EMISSION FACTORS* (lb pollutant/lb electrode)				EMISSIONS (lbs/hr)				HAPS (lbs/hr)
				PM = PM10	Mn	Ni	Cr	PM = PM10	Mn	Ni	Cr	
WELDING												
Metal Inert Gas (MIG)(carbon steel)	25.0	1.46		0.0052	0.00346	0.001	0.00001	0.190	0.126	0.037	0.0004	0.163
EMISSION TOTALS												
Potential Emissions lbs/hr								0.190				0.163
Potential Emissions lbs/day								4.56				3.92
Potential Emissions tons/year								0.831	0.553	0.160	0.002	0.715

METHODOLOGY

*Emission Factors are default values for carbon steel unless a specific electrode type is noted in the Process column.

**Emission Factor for plasma cutting from American Welding Society (AWS). Trials reported for wet cutting of 8 mm thick mild steel with 3.5 m/min cutting speed (at 0.2 g/min emitted). Therefore, the emission factor for plasma cutting is for 8 mm thick rather than 1 inch, and the maximum metal thickness is not used in calculating the emissions.

Using AWS average values: (0.25 g/min)/(3.6 m/min) x (0.0022 lb/g)/(39.37 in./m) x (1,000 in.) = 0.0039 lb/1,000 in. cut, 8 mm thick

Plasma cutting emissions, lb/hr: (# of stations)(max. cutting rate, in./min.)(60 min./hr.)(emission factor, lb. pollutant/1,000 in. cut, 8 mm thick)

Cutting emissions, lb/hr: (# of stations)(max. metal thickness, in.)(max. cutting rate, in./min.)(60 min./hr.)(emission factor, lb. pollutant/1,000 in. cut, 1" t)

Welding emissions, lb/hr: (# of stations)(max. lbs of electrode used/hr/station)(emission factor, lb. pollutant/lb. of electrode used)

Emissions, lbs/day = emissions, lbs/hr x 24 hrs/day

Emissions, tons/yr = emissions, lb/hr x 8,760 hrs/year x 1 ton/2,000 lb:

Appendix A: Emissions Calculations
Particulate
from Woodworking Operations

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Company Name: Bison Manufacturing, LLC
Address City IN Zip: 804 South Higbee (SR 15), Milford, Indiana 46542
Registration: 085-18420
Plt ID: 085-00095
Reviewer: Madhurima D. Moulik
Date: January 27, 2004

Amount of Sawdust Collected lbs/unit	Throughput units/hr	Particulate Potential lbs/hr	Particulate Potential tons/yr
5.00	0.1667	0.834	3.65

Methodology

PM10 is equal to PM

Particulate Potential (lbs/hr) = Amount of sawdust collected (lbs/unit) x Throughput (units/hr)

Particulate Potential (tons/yr) = Particulate Potential (lbs/hr) x 8,760 hrs/yr x 1 ton/2,000lbs

**Appendix A: Emissions Calculations
Summary from Entire Source**

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Company Name: Bison Manufacturing, LLC
Address City IN Zip: 804 South Higbee (SR 15), Milford, Indiana 46542
Registration: 085-18420
Plt ID: 085-00095
Reviewer: Madhurima D. Moulik
Date: January 27, 2004

Uncontrolled Emissions (tons per year)

Facility	PM	PM10	SO2	NOx	VOC	CO
Combustion	0.050	0.199	0.016	2.62	0.144	2.20
Surface Coating	4.67	4.67	0.00	0.00	22.0	0.00
Welding	0.831	0.831	0.00	0.00	0.00	0.00
Woodworking	3.65	3.65	0.00	0.00	0.00	0.00
Total	9.20	9.35	0.016	2.62	22.1	2.20

Controlled Emissions (tons per year)

Facility	PM	PM10	SO2	NOx	VOC	CO
Combustion	0.050	0.199	0.016	2.62	0.144	2.20
Surface Coating	0.825	0.825	0.00	0.00	22.0	0.00
Welding	0.831	0.831	0.00	0.00	0.00	0.00
Woodworking	3.65	3.65	0.00	0.00	0.00	0.00
Total	5.36	5.51	0.016	2.62	22.1	2.20

HAPs Emissions (tons per year)

Facility	Benzene	Dichlorobenzene	Formaldehyde	Hexane	Toluene	Lead
Combustion	0.0001	0.00003	0.002	0.047	0.0001	0.00001
Surface Coating	0.00	0.00	0.00	0.00	0.00	0.00
Welding	0.00	0.00	0.00	0.00	0.00	0.00
Woodworking	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.0001	0.00003	0.002	0.047	0.0001	0.00001

Facility	Cadmium	Chromium	Manganese	Nickel	Xylene	Toluene
Combustion	0.00003	0.00004	0.00001	0.0001	0.0001	0.0001
Surface Coating	0.00	0.00	0.00	0.00	0.052	7.54
Welding	0.00	0.002	0.553	0.160	0.00	0.00
Woodworking	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00003	0.002	0.553	0.160	0.052	7.54

Facility	Methanol	Methylene Chloride	Ethyl Benzene	MEK	Perchloroethylene
Combustion	0.00003	0.00	0.00	0.0001	0.0001
Surface Coating	0.000	1.02	0.009	1.27	0.226
Welding	0.00	0.00	0.00	0.00	0.00
Woodworking	0.00	0.00	0.00	0.00	0.00
Total	0.00003	1.02	0.009	1.27	0.226

Facility	Trichloroethylene	MIBK	Overall Total
Combustion	0.00	0.00	0.050
Surface Coating	0.226	0.760	11.1
Welding	0.00	0.00	0.715
Woodworking	0.00	0.00	0.000
Total	0.226	0.760	11.9